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THE  
TREATMENT OF SKIN DISEASES  
BY HYPERÆMIA  
(BIER'S SYSTEM)



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## THE TREATMENT OF SKIN DISEASES BY HYPERÆMIA (BIER'S SYSTEM)

I PUBLISHED in THE LANCET of August 29th, 1896, the first results obtained after two years' work on the hyperæmic treatment of rheumatic and other affections by the local application of dry hot air, and I have written several papers on the same subject since. This treatment, with various modifications, has now been adopted in most countries of the civilised world. Previously to the above time Professor Bier of Kiel had published some papers on a hyperæmic treatment which he produced by the application of compression bandages (*Stauungsbinde*), and which is now known as "Stauungs-hyperaemie," or obstructive hyperæmia. Of more recent date he, in conjunction with Professor Klapps, has devised a means of producing the same passive or venous congestion of quite local areas by a modification of the old cupping-glass method. With this object they have invented a series of easily adjustable exhaustion or suction glasses made of various shapes and sizes according to the part to be treated. These consist of a glass tube or cup, to one end of which a rubber ball is attached, and by varying the compression of the ball it is easy to produce a graduated degree of negative pressure, or partial vacuum, or exhaustion of the skin area to which the glass is applied. Larger apparatuses for treating more extended areas or for obtaining a more complete exhaustion are made with a detachable exhaustion pump, in place of the rubber ball.

At the present time there are three methods for producing local hyperæmia—namely, (1) by the application of elastic bands or bandages; (2) by means of suction or cupping apparatus; and (3) by hot air. The first two agents produce a passive or venous hyperæmia, and the third an active or arterial hyperæmia. I have been trying some of Bier and Klapps's cups in the treatment of numerous forms of skin

diseases and with results so satisfactory that I consider they are worth recording, in order that other workers in the field of dermatology may repeat and extend their use.

I suppose it must be admitted that the majority of skin diseases—in fact, perhaps nearly all, except those caused by parasites, either animal or vegetable—are the result of malnutrition of one or more of the complicated components



Some suction cups used in the accompanying cases.

which together form the epidermal covering of the human body. The general principle which underlies all scientific treatment of skin diseases—whether by external or internal remedies or by a conjunction of both—is to improve, by appropriate means, the nutrition of the affected superficial area. This is easily accomplished by producing an increased blood-supply to the part, and no simpler method is known than inducing this passive congestion or artificial hyperæmia

by the scientific application of an exhaustion apparatus, giving rise to a partial vacuum.

In most of the cases treated, I have continued with the local application of the more or less routine ointments and lotions, both to the regions of the skin to which the cups have been applied, as well as to the other lesions—making a point especially of applying the local remedies soon after the hyperæmic treatment, and before the parts have returned to their previous condition. In this way it has been possible to compare the regions treated by hyperæmia in addition to those treated by ointments alone. I have also used this method in many cases in which I was treating some of the lesions with X rays. I have usually made a rule to treat all the lesions with the same ointments, and to begin with, only the eruptions on one side of the body with the suction cups, generally choosing the worst lesions for the new method.

The treatment has been given on the principle of applying exhaustion for various repeated periods of about five minutes' duration with three minutes intervals; usually two to five applications at each *séance*, but no sitting continued for more than an hour or repeated more than once a day. From the nature of the lesions the majority of the patients treated did not suffer any pain or even inconvenience. It was possible to produce a considerable amount of local congestion when desirable—that is to say, the treatment could be continued for longer periods, and with much greater amount of exhaustion of air in the apparatus than is possible or desirable when treating inflammatory lesions such as boils or abscesses. Nevertheless, the applications have to be made with intelligence and caution in order to produce the best results. In the majority of the hospital patients it has only been practical to treat them twice a week; in a few daily treatments have been administered.

I have so far used this treatment in the following classes of diseases, and with the results given under the separate headings, in which a few cases are briefly described to illustrate the chief features: acne, acne rosacea, alopecia areata, chilblain, eczema, keloid, lupus vulgaris, milium, scars, seborrhœa, sycosis, syphilis (tertiary), ulcers (chronic), urticaria (chronic and pigmentosa).

CASE 1. *Acne*.—A female, aged 24, had suffered from severe acne of the face for nine years. She had also some seborrhœa of the scalp. I



prescribed a plaster mull of salicylic acid and creasote to be put on at night and a sulphur lotion afterwards to be applied. The right side of the face was subjected to the hyperamic treatment, this being the more indurated of the two cheeks. After a month the right side was considerably softer and less indurated than the opposite one.

CASE 2. *Acne*.—A girl, aged 16. The rash appeared on her face five years ago; three years ago it had spread to her back, shoulders, and chest, being especially severe over the upper part of the breasts, with considerable general infiltration of the cheeks, forehead, and chin. After a fortnight's daily application of suction glasses, followed by rubbing in an ointment composed of sulphur and salicylic acid, all the areas treated were better than they had been for many months—in fact, parts of the face were cured of infiltration and almost freed from comedones.

CASE 3. *Acne*.—A youth, aged 19, had suffered for five years from severe acne all over the face and neck and considerable general infiltration of the skin. He was ordered a sulphur and salicylic acid ointment for all the diseased regions. I treated the right side of his face with X rays and the left with suction cups. After a few weeks' treatment both sides had considerably improved, especially the left, which had become less infiltrated, and the superficial tissues softer than those on the right side.

CASE 4. *Acne rosacea*.—A woman, aged 38, who had suffered for nine years from a very persistent eruption of the face, especially on the tip of the nose and the chin. The nose was always cold to the touch and very congested at the tip, and the chin was covered with groups of pustular acne, with general redness and infiltration of the surrounding tissues. She was ordered a salicylic acid paste, and after a very few applications of the cups to the nose and chin a very considerable improvement took place. For some time after each treatment the surface of the nose remained warm to the touch, and when last seen the condition was practically cured, but she continued herself to apply a small cup to any fresh spot which appeared and afterwards rubbed in the application.

CASE 5. *Alopecia areata*.—A man, aged 32. He stated that he lost all the hair of his head and face when he was 4 or 5 years old, and from this time he was quite bald till he was 14 years of age, when the hair of his head grew again, but not that of his eyebrows. For the last two years he had had some six patches of complete baldness on the vertex and occipital regions. He had been under treatment ever since, but with no improvement, and for some months had been applying lysol lotions of various strengths to the patches, together with various internal remedies, such as thyroid, &c. A suction cup was applied to the patch on top of the head, and after six weeks of daily treatments a fine growth of hair over the bare surface was visible, the other patches remaining as bald as ever. The skin of this region had lost the shiny appearance and looked altogether darker and more natural in colour.

CASE 6. *Alopecia areata and psoriasis*.—A woman, aged 37. She had a severe attack of rheumatic fever when she was 25 years of age, which left her much crippled for some months afterwards. She had suffered from psoriasis since childhood, always on the front of the knees, and at times on the body and scalp, she never being entirely free from it. About six months ago she lost the hair from the nasal quarter of the left eyebrow, and a circular patch of complete baldness appeared in the



centre of the outer half of the same eyebrow. She applied a small suction cup to the patch of baldness daily, and afterwards applied a weak lysol lotion, and in a few weeks several new hairs appeared on the patch, and at the time of writing it had more or less disappeared and is hardly recognisable except on close inspection. She also applied the hyperæmic method to some very persistent psoriasis spots over the knees, and then rubbed in a tar ointment, and she is now practically cured of the psoriasis.

CASE 7. *Keloid*.—A boy, aged 8, sent to me by Dr. G. Dawson. The child had fallen and cut his face on the pavement when he was five years old, and the resulting scar had gradually extended ever since and now measured 5.25 cm. by 4.50 cm. extending, involving, and everting the right lower eyelid, over the side of the cheek almost to the nose. The edges of the keloid were very hard, infiltrated, and much raised above the surrounding tissues. I treated the upper part of the growth with X rays, and the lower with suction cups, and came to the conclusion that the lower part became softer and improved more rapidly than the upper.

CASE 8. *Lupus vulgaris*.—A Jewess, aged 13, had a small spot on the tip of her nose, which was very red at the time and appeared after a severe cold three years ago. She attended at the London Hospital and afterwards for two years she had X rays applied at the Metropolitan Hospital, but the ulceration continued to spread. When first seen in July last the whole nose was covered by dry scabs covering an unhealthy ulcerated surface. She was ordered carbolic oil and a lanolin ointment. As soon as all the scabs had come away I touched parts of the ulcerated surface with solid CO<sub>2</sub>, improvement soon showed itself, but the tip of the nose always remained cold. Bier's suction cups were afterwards applied, and in a short time the whole ulcerated surface had healed over. I gave her one application of the X rays during the treatment.

CASE 9. *Lupus vulgaris*.—A boy aged 5. This case was sent to me for treatment by Dr. A. Eddowes. Eighteen months previously the boy had an attack of measles, and a few weeks after this patches of lupus appeared in different parts of the body. The first came on the centre of the right cheek, then one on the left. Others shortly afterwards developed on the buttocks, thighs, elbow, wrist, and lastly on the chest. There were at this time 13 distinct lupus infiltrations which had not gone on to ulceration, but some were much raised from the surrounding skin and were threatening to break down. I treated the patches on the left cheek, elbow, and wrist with X rays, and those on the right cheek and leg and left buttock with suction cups. He was ordered a carbolic acid lotion and white precipitate ointment to apply to all the lesions. At the time of writing all the areas specially treated have considerably improved and some are nearly healed. Especially is this the case with the patch on the left buttock, where the lesion, which originally measured 2 cm. by 1.125 cm., is now only 1.25 cm. by 0.75 cm., the rest of the area being covered by a thin pale scar. The lesion on the right cheek measured 3.125 cm. by 2.25 cm., and is now 2.25 cm. by 1.80 cm., and the centre has healed. The one on the left cheek (which had been treated for eight weeks with X rays) had measured 3.5 cm. by 2 cm.; it is now 3 cm. by 1.75 cm., and there is no healing or scarring seen in the centre of this patch.

CASE 10. *Lupus vulgaris and scars*.—A woman, aged 27. She had suffered from a "red nose" for some years, and stated that the skin

over it often cracked. Six months ago a pimple appeared on the left side of the tip of the nose, which soon became an ulcer, which had persisted in spite of all treatment. I am treating her with applications of a suction cup followed by X rays. Here, again, before treatment the tip of the nose is cold, but after a few minutes' hyperæmic treatment it becomes warm. She has also several scars under her chin and side of neck, the result of suppurating glands in childhood. There is one especially depressed scar under the centre of the chin, to which I am also applying the suction cups with gratifying results, the scar not being so depressed and disfiguring as before, and the ulceration of the tip of the nose has healed. This patient gave a positive von Pirquet's reaction.

CASE 11. *Milia*.—A girl, aged 6, with milia of cheeks and chin. Suction cups were applied to the areas of the lesions, and afterwards salicylic acid ointment was rubbed in. After a month's treatment all the milia had disappeared. It was noticed that at first the application of the exhaustion cups made the milia much more prominent for the time being, and so it was easy to see where to apply the ointment.

CASE 12. *Psoriasis*.—A woman, aged 35, who had had psoriasis for 16 years. She was in the hospital for three months 12 years ago, and it was nearly cured when she came out, but it never completely disappeared, and had been much worse lately. Recently it had been on her arms, legs, and abdomen. I selected some of the most indurated patches above the right knee-joint and over the patella and applied the cups. After treatment she rubbed in a compound tar ointment. The lesions treated by the hyperæmic method certainly reacted more satisfactorily than the others, and after a few weeks they had disappeared.

CASE 13. *Seborrhœa*.—A woman, aged 31, with seborrhœa of the scalp and a very persistent patch on the sternum and another between the shoulders. She also had some *lichen planus* on the right leg. I applied the cups to the patches on the sternum and between the shoulders, and she rubbed in some salicylic acid paste afterwards and in a few weeks they disappeared.

CASE 14. *Seborrhœic eczema*.—A woman, aged 59, who had been suffering for some months with a very irritable indurated eruption nearly all over the face, trunk, and limbs. The present attack began with a patch on the front of the right wrist, then one on the leg, and it had gradually spread over nearly the whole body. When first seen she had a considerable amount of induration of the face which gave her a leprous appearance, suggestive of an early case of *mycosis fungoides*. However, the face has very much improved. I have treated the worst lesions with X rays, and selected a few very indurated patches for the application of the suction cups, with very beneficial results. She has applied a paste consisting of salicylic acid (10 grains to the ounce) and most of the lesions have disappeared and the irritation has subsided.

CASE 15. *Chronic ulcer*.—A man, aged 56, who had suffered from varicose ulcers of the leg on and off for 30 years. At the time of beginning treatment he had a large ulcer, which he had had for six months, and a very indurated smaller one for 18 months. The larger one I treated with X rays, and the smaller one with suction cup. After the first applications a good deal of pus was drawn out, but later only clean serum exuded, and the ulcer healed up in a month.

*Summary.*

From my observations I have formed the opinion that practically all chronic forms of skin diseases are benefited by the hyperæmic treatment before applying local remedies. The action of ointments and lotions is considerably facilitated if a local congestion of the part is produced before they are applied. This local hyperæmia probably acts in two ways. In the first place, by producing a passive congestion, it increases the blood-supply, and so improves the nutrition of the part, and at the same time encourages the removal of deleterious products by the venous blood. In the second place, this local hyperæmia assists in the local action of the drugs when they are afterwards applied.

Of the cases so far treated, it would appear that the most satisfactory results have been obtained in psoriasis, especially in some very old-standing cases in which the lesions were very chronic and localised. We so often meet with cases of this complaint of many years' standing where some very persistent lesions are limited to a small area, such as the knees or elbows, and which resist all treatment. This is the class of case specially benefited by this method.

Some cases of lupus vulgaris have shown rapid improvement—in fact, from some recent observations the hyperæmic method showed earlier and much more satisfactory results than the X rays had done. Acne, both diffuse and local, reacted well, but these cases required a considerably greater amount of congestion and more frequently repeated treatments, both general to a large affected area, and afterwards local to the individual and more persistent comedones and pustules.

The immediate result of the local treatment is to produce a venous congestion of the skin, which increases the action of the sudoriferous glands, and gives rise to a varying degree of perspiration. This varies with the nature of the lesion and the degree of hyperæmia produced. In some conditions only an almost imperceptible amount of sweating results—perhaps just sufficient to produce a slight haziness on the sides of the cupping glass without a visible sweat on the skin. In others, such as many eczemas and seborrhœas, a profuse perspiration is quickly produced, and after a few minutes the whole part is bathed in sweat. In other cases the ordinary sweat is replaced by a serous exudation. In



some instances of non-ulcerated lupus, which as a class perspire very freely under the treatment, a blood-stained serum exuded after a short time, and for this reason the cases require to be very carefully treated and only for very short periods at a time, one minute or so being usually sufficient.

I believe future research into the different reactions of various skin lesions under hyperæmia will be of considerable scientific value in assisting and defining the similarities or differences between some of the less easily distinguished skin diseases. These physiological or pathological reactions of various lesions may not only become a help to the pathologist but also of considerable aid to the diagnosis of some, at present, rather ill-defined and readily confused morbid states.

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